

Julia M. Kreiner
Evolutionary Geneticist
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Academic Positions

Killam Postdoctoral Research Fellow	2021-2023
Bioinformatics BRC Postdoctoral Fellow	2021-2024
University of British Columbia, Biodiversity Research Institute	
Supervisors: Dr. Loren Rieseberg & Dr. Sarah P. Otto	

Education

PhD	Ecology & Evolutionary Biology, University of Toronto	2015 - 03/2021
	Title: <i>Population genomics of herbicide resistance and agricultural adaptation</i>	
	Supervisors: Dr. Stephen I. Wright, Dr. John R. Stinchcombe	
	Visiting Researcher, Max Plank Institute for Developmental Biology	2019
	Supervisors: Detlef Weigel, Hernan Burbano	
BSc	Honours Biology, University of Guelph	2011 - 2015
	Honours title: <i>Evolutionary dynamics of unreduced gametes</i>	
	Honours supervisor: Dr. Brian C. Husband	

Publications

10. **Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2021. The genetic architecture and genomic context of glyphosate resistance. *bioRxiv*, Accepted at *Molecular Ecology*.
9. Martin SL, Parent JS, Laforest M, Page E, **Kreiner JM**, & James J. 2019. Population Genomic Approaches for Weed Science. *Plants*.
8. **Kreiner JM**, Giacomini D, Bemm F, Waithaka B, Regalado J, Lanz C, Hildebrandt J, Sikkema PH, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Multiple modes of convergent adaptation in the spread of glyphosate-resistant *Amaranthus tuberculatus*. *PNAS*. — Media: [Talking BioTech Podcast] [University of Toronto News]
7. Sobanski J, Giavalisco P, Fischer A, **Kreiner JM**, Walther D, Schttler MA, Pellizzer T, Golczyk H, Obata T, Bock R, Sears BB, & Greiner S. 2019. Chloroplast competition is controlled by lipid biosynthesis in evening primroses. *PNAS*.
6. Kryvokhyzha D, Salcedo A, Eriksson MC, Duan T, Tawari N, Chen J, Guerrina M, **Kreiner JM**, Kent TV, Lagercrantz U, Stinchcombe JR, Glemin S, Wright SI, & Lascoux M. 2019. Parental legacy, demography, and introgression influenced the evolution of the two subgenomes of the tetraploid *Capsella bursa-pastoris* (Brassicaceae). *PLOS Genetics*.
5. **Kreiner JM**, & Wright SI. 2018. (*Perspective*) A less selfish view of genome size evolution in maize. *PLOS Genetics*.

4. **Kreiner JM**, Stinchcombe JR, & Wright SI. 2018. Population genomics of herbicide resistance: adaptation via evolutionary rescue. *Annual Review of Plant Biology*.
3. **Kreiner JM**, Kron P, & Husband BC. 2017. Evolutionary dynamics of unreduced gametes. *Trends in Genetics*.
2. **Kreiner JM**, Kron P, & Husband BC. 2017. Frequency and maintenance of unreduced gametes in natural plant populations: associations with reproductive mode, life history, and genome size. *New Phytologist*.
1. **Kreiner JM**. 2016. (*Digest*) The key to pollen-stigma dimorphisms: Dissecting the functional significance of the heterostylous syndrome. *Evolution*.

Not peer reviewed

3. **Kreiner JM**, Sandler, G, Stern, AJ, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2021. Repeated origins, gene flow, and allelic interactions of herbicide resistance mutations in a widespread agricultural weed. bioRxiv (in review, *eLife* - 05/13).
2. **Kreiner JM**. 2019. Where and how we live - Graduate student housing in Toronto. *The EEB Quarterly*, Volume 3. [link](#).
1. **Kreiner JM**. 2016. TAGC shorts: Evolution on ecological timescales. *Genes to Genomes, GSA Blog*. [link](#)

Research Scholarships

2021-2024	Bioinformatics Postdoctoral Fellowship, Biodiversity Centre, UBC	\$171,000
2021-2023	Killam Postdoctoral Research Fellowship, University of British Columbia	\$108,000
2020	GM Women in Science and Mathematics Award, University of Toronto	\$4,000
2019	Rosemary Grant Advanced Award, Society for the Study of Evolution	\$4,250
2019	GM Women in Science and Mathematics Award, University of Toronto	\$5,000
2019	Dean's International and Indigenous Initiatives Fund, University of Toronto	\$4,000
2017-2020	Postgraduate Scholarships-Doctoral Program (PGS-D), NSERC	\$63,000
2016-2017	Canada Graduate Scholarships-Masters (CGS-M), NSERC	\$17,500
2015	College of Biological Sciences Undergraduate Research Assistantship, UofGuelph	\$5,000
2014	Undergraduate Student Research Award (USRA), NSERC	\$4,500

Awards & Recognitions

2021	Peter Abrams Prize, EEB University of Toronto.	\$1000
2021	Early Career Award, J.F. Crow Institute, UW-Madison.	\$150
2019	DeLill Nasser Award for Professional Development, Genetics Soc. Amer.	\$1000
2019	Golden Buffalo for Best Talk, Great Lakes Evolutionary Genetics Symposium	
2019	Diversity & Excellence in Doctoral Research Award, CSEE	\$1500
2019	Hamilton Award Finalist, SSE	\$500
2019	Walter M. Fitch Prize Finalist, SMBE	\$2,000
2019	Ramsay Wright Graduate Award, EEB UofToronto	\$1,000
2017	Young Investigator Travel Award, SMBE	\$2,000

Invited Seminars

- Kreiner JM**, Stinchcombe JR, & Wright SI. 2021. The repeatability and genomic architecture of herbicide resistance evolution. Charles University, Prague. (Dept. Seminar)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2021. The repeatability and genomic architecture of herbicide resistance evolution. J.F. Crow Early Career Scientist Seminar Award Series, University of Wisconsin Madison, USA. (Award Series)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2021. Mutational origins, genomic architecture, and selective history of herbicide resistance. University of British Columbia, Biodiversity Research Institute. Vancouver, Canada. (Dept. Seminar)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance and agricultural adaptation. Canadian Society for Ecology & Evolutionary Biology Annual Meeting. Fredericton, Canada. (Plenary Talk)
- Kreiner JM**, Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance adaptation. Ecology & Evolutionary Biology Seminar Series, Queens University. Kingston, Ontario, Canada. (Dept. Seminar)
- Kreiner JM**, Weigel D, Stinchcombe JR, & Wright SI. 2019. Demographic and genetic origins of herbicide resistance and agricultural adaptation in *Amaranthus tuberculatus*. Max Planck Institute for Developmental Biology. Tuebingen, Germany. (Dept. Seminar)
- Kreiner JM**, Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2018. Deciphering the evolutionary mechanisms driving the spread of glyphosate resistant *Amaranthus tuberculatus*. Canadian Weed Science Society Annual Meeting. Niagara Falls, Ontario, Canada. ("Genomics of herbicide resistance" symposium)
- Kreiner JM**, Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2018. Population genetics of the spread of glyphosate-resistant *Amaranthus tuberculatus* into Canada. University of Guelph - Ridgetown Campus, Ontario, Canada. (Dept. Seminar)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. PAG XXVI, San Diego, California, USA. ("Weed science" symposium)
- Kreiner JM**, Kron P, & Husband B. 2018. The evolutionary maintenance of unreduced gametes and their role in whole genome duplication. PAG XXVI. San Diego, California, USA. ("Polyploidy" symposium)

Selected Conference Presentations

- Kreiner JM**, Kron P, Husband BC. 2021. The frequency and maintenance of unreduced gametes & implications for polyploid formation. Polyploidy Webinar, Barker Lab. (Virtual talk)
- Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2020. Heterogeneity in the history and interactions of independent target-site resistance mutations across populations. Society for Molecular Biology & Evolution Annual Meeting. Quebec, Canada. (Talk, Molecular foundations of parallel and convergent evolution) - *Cancelled due to COVID*
- Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomic processes of convergent herbicide resistance adaptation. Society for Molecular Biology & Evolution Annual Meeting. Manchester, UK. (Talk, Walter Fitch Symposium)
- Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Patterns & population genomic processes of herbicide resistance and agricultural adaptation. Society for the Study of

Evolution Annual Meeting. Providence, Rhode Island, USA. (Talk, Hamilton Symposium)

Kreiner JM, Giacomini D, Bemm F, Waithaka B, Regalado J, Lanz C, Hildebrandt J, Sikkema PH, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance and agricultural adaptation in *Amaranthus tuberculatus*. Great Lakes Evolutionary Genetics Symposium. University at Buffalo, Buffalo, New York, USA. (Talk)

Kreiner JM, Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. II Joint Congress on Evolutionary Biology. Montpellier, France. (Talk)

Kreiner JM, Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. AGA Wild Quantitative Genetics Symposium, Toronto, Canada. (Poster)

Kreiner JM, Stinchcombe JR, & Wright SI. 2017. Population genomics of herbicide resistance and agricultural adaptation in *Capsella bursa-pastoris*. SMBE. Austin, Texas, USA. (Poster)

Kreiner JM, Stinchcombe JR, & Wright SI. 2016. The evolutionary genomics of herbicide resistance in *Capsella bursa-pastoris*. The Allied Genetics Conference, Genetics Society of America. Orlando, Florida, USA. (Poster)

Kreiner JM, Kron P, & Husband B. 2015. The role of life history in the evolution of unreduced gametes in Brassicaceae. Ontario Ecology, Ethology, and Evolution Colloquium. York University, Toronto, Ontario, Canada. (Talk)

Teaching Experience

Courses Taught

2020 **Instructor** Bioinformatics for Evolutionary Biology (EEB1450)

All the following courses taught at University of Toronto

2020 **Teaching Assistant** Intro to Bioinformatics & Genomics (EEB1450)

2018, 2019 **Teaching Assistant & Guest Lecturer** Principals of Evolution (EEB318)

2017, 2019 **Teaching Assistant** Evolutionary Ecology (EEB324)

2015, 2017 **Teaching Assistant** Adaptation & Biodiversity (BIO120)

2016 **Teaching Assistant** From Genes to Ecosystems (BIO220)

Mentoring Independent Research Projects

2019-2020 Paula Pietraszkiewicz - *Assaying glyphosate herbicide resistance in Amaranthus*

2019-2020 Justin To - *Agricultural adaptation of primary dormancy in Amaranthus*

2019 Amalia Caballero - *Agricultural adaptation of secondary dormancy in Amaranthus*

2018-2019 Solomiya Hnatovksa - *Characterizing transposable element evolution in Amaranthus*

2018-2019 Hayley McKay - *Gene expression and rapid agricultural adaptation in Amaranthus*

2017-2018 Sotirios Katsuras - *Dose-response to ALS herbicides in Capsella bursa-pastoris*

Additional Research Experience

- 2019 **Student** Midwest Phylogenetics Workshop (NSF/Uof Minnesota/E. Goldberg)
- 2016 **Student** Contemporary Adaptation Workshop (Colorado SU/ Software Carpentry)
- 2013-2015 **Research Assistant** University of Guelph (B. Husband)
- 2012-2013 **Research Assistant/Field Technician** University of Guelph (A. MacDougall)
- 2012-2013 **Research Assistant/Lab Technician** University of Guelph (R. Danzmaan)

Community Involvement

Referee *Proceeding of the National Academy of Sciences (3), Molecular Biology and Evolution (2), Molecular Ecology, Heredity, Ecology and Evolution, & Evolutionary Applications*

- 2018-2019 **Panelist** Mental Health Discussions, Dept. of EEB, University of Toronto
- 2018-2019 **Editor & Writer** *The EEB Quarterly*, University of Toronto
- 2018-2019 **Associate Member & Writer** F1000, Faculty of 1000
- 2018-2019 **EGSA Co-president** EEB Grad. Student Association, University of Toronto
- 2018 **Organizer** Symposium "The Evolution of Resistance", Joint SSE/ESEB, Montpellier
- 2018 **Organizer** EEB Plant Evolutionary Genetics Seminar Series, University of Toronto
- 2017 **Judge** EEB Undergraduate Thesis Poster Fair, University of Toronto
- 2017-2018 **Organizer**, Student Journal Club, University of Toronto
- 2017-2018 **Social Committee** EEB Grad. Student Association, University of Toronto
- 2017 **Organizer** Evolution Book Club, EEB Grad. Student Association, University of Toronto
- 2017 **Volunteer**, EEB Booth at Science Rendezvous, University of Toronto
- 2016,2017 **Planning Committee** Atwood Colloquium, University of Toronto
- 2016-2017 **Secretary** EEB Grad. Student Association, University of Toronto
- 2016-2017 **Peer Mentor** Dept. of EEB, University of Toronto
- 2016-2017 **Panelist** Workshop series on applying for an NSERC awards, University of Toronto
- 2016 **Organizer** Ontario Ecology, Ethology, and Evolution Colloquium, Toronto
- 2016 **Volunteer** Toronto General Hospital, University Health Network